element (BE) in the form of a peptide nucleic acid (PNA) or a derivative or analogue thereof, and a nucleic acid carrier, which comprises at least one BE target sequence and a nucleic acid of interest in a vector; said complex being hybridized to said carrier using the BE-BE interaction.

29. (NEW) The transport entity according to claim 28, wherein said two or more FEs provide different functions.

30. (NEW) The transport entity according to claim 28, wherein said vector is a plasmid or an oligonucleotide.

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31. (NEW) The transport entity according to claim 28, wherein the carrier includes a detectable marker element.

32. (NEW) The transport entity according to claim 28, wherein the nucleic acid of interest is a gene encoding a peptide, a protein or an RNA.

33. (NEW) The transport entity according to claim 28, wherein said BE and FEs are separated by linker elements.

34. (NEW) The transport entity according to claim 28, which comprises more than one FE-BE-complex, each one of which is

hybridized to a separate BE target sequence present on the same carrier.

35. (NEW) The transport entity according to claim 28, wherein the FE is a nuclear localization signal (NLS), or a fragment thereof exhibiting nuclear localizing signal properties.

36. (NEW) The transport entity according to claim 28, wherein the FE is a protein exhibiting properties enabling both membrane translocation and nuclear transport.

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37. (NEW) A method for transferring a nucleic acid of interest across a biological membrane to a specific location within or on a cell by the use of the transport entity according to claim 28, comprising the steps of:

(a) providing a carrier molecule comprising the nucleic acid of interest in a vector and a binding element (BE) target sequence;

(b) providing a complex by coupling two or more functional elements (FE) to a binding element (BE);

(c) hybridizing the BE of said complex to the BE target of said carrier; and

(d) contacting said transport entity with said biological membrane to provide for a transfer of the nucleic acid of interest across said membrane.

38. (NEW) The method according to claim 37, wherein said two or more FEs provide different functions.

39. (NEW) The method according to claim 37, wherein in step (b), a complex is provided, wherein said BE and FEs are separated by linker element(s).

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40. (NEW) The method according to claim 37, wherein in step (a), the carrier provided is a plasmid or an oligonucleotide vector comprising said nucleic acid of interest and at least one target sequence.

41. (NEW) The method according to claim 37, wherein in step (a), a detectable marker element is also inserted in said carrier.

42. (NEW) The method according to claim 37, wherein the nucleic acid of interest is a gene encoding a peptide, a protein or an RNA.

43. (NEW) The method according to claim 37, which comprises more than one FE-BE complex, each one of which is hybridized to a separate BE target sequence present on the same carrier.

44. (NEW) The method according to claim 37, wherein the biological membrane is a cell wall.

45. (NEW) The method according to claim 37, wherein the biological membrane is a nuclear membrane.

46. (NEW) The method according to claim 37, wherein the FE is a nuclear localization signal (NLS), or a fragment thereof exhibiting nuclear localizing signal properties.

47. (NEW) The method according to claim 37, wherein the FE is a protein provided in said complex, which enables both membrane translocation and nuclear transport of the nucleic acid of interest.

48. (NEW) A kit comprising components for making a transport entity capable of transferring a nucleic acid of interest across a biological membrane to a specific location within or on a cell, which kit comprises a binding element (BE) in the form of a peptide nucleic acid (PNA); two or more functional elements (FE);

an oligonucleotide comprising a target for said BE suitable for cloning in a desired plasmid containing said nucleic acid of interest; and optionally reagents suitable for such transfer.

49. (NEW) The kit according to claim 48, wherein said two or more FEs provide different functions.

50. (NEW) The kit according to claim 48, wherein at least one functional element (FE) is a nuclear localization signal (NLS), or a fragment thereof exhibiting nuclear localizing signal properties.

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51. (NEW) The kit according to claim 48, wherein the FE is a protein provided in said complex, which enables both membrane translocation and nuclear transport of the nucleic acid of interest.

52. (NEW) The transport entity according to claim 35, wherein said NLS is a SV40 large T antigen protein.

53. (NEW) The transport entity according to claim 36, wherein the FE is an HIV protein.

54. (NEW) The transport entity according to claim 53, wherein said HIV protein is TAT.

55. (NEW) The method according to claim 46, wherein said NLS is a SV40 large T antigen protein.

56. (NEW) the method according to claim 47, wherein the FE is an HIV protein.

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57. (NEW) The method according to claim 56, wherein said HIV protein is TAT.

58. (NEW) The kit according to claim 50, wherein said NLS is a SV40 large T antigen protein.

59. (NEW) The kit according to claim 51, wherein the FE is an HIV protein.

60. (NEW) The kit according to claim 59, wherein said HIV protein is TAT.--